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A Comparison of Two LDL Cholesterol Targets after Ischemic Stroke

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ABSTRACT

BACKGROUND

The use of intensive lipid-lowering therapy by means of statin medications is recommended after transient ischemic attack (TIA) and ischemic stroke of atherosclerotic origin. The target level for low-density lipoprotein (LDL) cholesterol to reduce cardiovascular events after stroke has not been well studied.

METHODS

In this parallel-group trial conducted in France and South Korea, we randomly assigned patients with ischemic stroke in the previous 3 months or a TIA within the previous 15 days to a target LDL cholesterol level of less than 70 mg per deciliter (1.8 mmol per liter) (lower-target group) or to a target range of 90 mg to 110 mg per deciliter (2.3 to 2.8 mmol per liter) (higher-target group). All the patients had evidence of cerebrovascular or coronary-artery atherosclerosis and received a statin, ezetimibe, or both. The composite primary end point of major cardiovascular events included ischemic stroke, myocardial infarction, new symptoms leading to urgent coronary or carotid revascularization, or death from cardiovascular causes.

RESULTS

A total of 2860 patients were enrolled and followed for a median of 3.5 years; 1430 were assigned to each LDL cholesterol target group. The mean LDL cholesterol level at baseline was 135 mg per deciliter (3.5 mmol per liter), and the mean achieved LDL cholesterol level was 65 mg per deciliter (1.7 mmol per liter) in the lower-target group and 96 mg per deciliter (2.5 mmol per liter) in the higher-target group. The trial was stopped for administrative reasons after 277 of an anticipated 385 end-point events had occurred. The composite primary end point occurred in 121 patients (8.5%) in the lower-target group and in 156 (10.9%) in the higher-target group (adjusted hazard ratio, 0.78; 95% confidence interval, 0.61 to 0.98; $P=0.04$). The incidence of intracranial hemorrhage and newly diagnosed diabetes did not differ significantly between the two groups.

CONCLUSIONS

After an ischemic stroke or TIA with evidence of atherosclerosis, patients who had a target LDL cholesterol level of less than 70 mg per deciliter had a lower risk of subsequent cardiovascular events than those who had a target range of 90 mg to 110 mg per deciliter. (Funded by the French Ministry of Health and others; Treat Stroke to Target ClinicalTrials.gov number, NCT01252875.)

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*A complete list of the Treat Stroke to Target investigators is provided in the Supplementary Appendix, available at NEJM.org.

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